

REMARKS

A Notice of Appeal is being filed concurrently herewith.

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The rejection of claims 1 and 8 under 35 USC §103(a) as being unpatentable in view of Silva is respectfully traversed. As the Applicants argued in their previous response, Silva requires a melting step whereby the tantalum-containing ore is melted in a high temperature furnace with CaF₂. The amount of CaF₂ used is described as the stoichiometric amount necessary for reacting with the Ta, Nb, Zr and Ti oxides which are present in the ore. Col. 2, lines 24-36. The Applicants' claimed invention does not require a melting stage to react the oxides first. Since the oxides in the ore are reacted before adding sulfuric acid, Silva does not teach or suggest making a slurry with a tantalum concentrate containing at least one of (Fe,Mn)(Ta,Nb)₂O₆, (Fe,Mn,Mg)(Nb,Ta)₂O₆, (Ca,Na)₂Ta₂O₆(O,OH,F) and NaTaO₃, a fluoride-containing compound, and sulfuric acid.

The Examiner in the Final Action stated that contrary to the Applicants' argument "Silva '507 teaches the use of a columbite ore to form a slurry containing the ore, a fluoride-containing compound and sulfuric acid." The Applicants again respectfully disagree. The Applicants' slurry is formed by combining a tantalum concentrate containing at least one of the specified oxide compounds, a fluoride containing compound and sulfuric acid. In Silva, the oxides in the ore are reacted with CaF₂ in the melting stage *before* the sulfuric acid is added. Although the composition of the resulting slag is not specified, one skilled in the art would recognize that the process of Silva converts the oxides present in the ore to a different compound before sulfuric acid is added. More particularly, Silva specifically states that "[t]he ore is initially melted with fluorite (CaF₂) in the stoichiometric amount necessary for *reacting* with the Ta, Nb, Zr, and Ti oxides which are present in the ore." Silva continues by describing the temperature used in the melting stage as "the *reaction* temperature." Col. 2, lines 31-36 (emphasis added). Thus, one skilled in the art would not interpret Silva as teaching or suggesting forming a slurry of the oxides with calcium fluoride and sulfuric acid as the oxides in the ore have already been reacted with the fluorite.¹

Therefore, the Applicants respectfully assert that the claimed invention is not obvious in view of Silva.

¹ In fact, Campbell '060 describes that the high temperature reaction of the oxidic ore with a bifluoride compound will result in the formation of complex fluorides. Col. 1, line 68 to Col. 2, line 15.

The rejection of claims 1-2, 8 and 9 under 35 USC §103(a) as being unpatentable over Silva in view of Campbell '060 is respectfully traversed. The Applicants reassert their above arguments with respect to Silva. In particular, Silva does not teach or suggest making a slurry with a tantalum concentrate containing at least one of $(Fe,Mn)(Ta,Nb)_2O_6$, $(Fe,Mn,Mg)(Nb,Ta)_2O_6$, $(Ca,Na)_2Ta_2O_6(O,OH,F)$ and $NaTaO_3$, a fluoride-containing compound, and sulfuric acid. With respect to Campbell, the Applicants would like to point out that the acid digestion identified by the Examiner in Example 2 is with hydrofluoric acid (HF) which is exactly the very thing that the process of Silva sought to avoid. Col. 1, lines 6-15 and Col. 3, lines 50-54. Thus, the use of HF in Example 2 cannot be analogous to the sulfuric acid addition used by Silva. Moreover, similar to Silva, Campbell converts the oxides in the ore to complex fluorides prior to adding acid. Col. 1, line 68 to Col. 2, line 15. This does not teach or suggest the Applicants claimed invention wherein the oxide-containing concentrate is mixed directly with a fluoride-containing compound and sulfuric acid. No conversion of the oxides to another chemical form is required prior to mixing with the sulfuric acid. Thus, the Applicants respectfully assert that the claimed invention is not obvious in view of Silva and Campbell '060.

The rejection of claims 1, 3, 4, 10 and 12 under 35 USC §103(a) as being unpatentable over Silva in view of Pierret is respectfully traversed. The Applicants reassert their above arguments with respect to Silva. In particular, Silva does not teach or suggest making a slurry with a tantalum concentrate containing at least one of $(Fe,Mn)(Ta,Nb)_2O_6$, $(Fe,Mn,Mg)(Nb,Ta)_2O_6$, $(Ca,Na)_2Ta_2O_6(O,OH,F)$ and $NaTaO_3$, a fluoride-containing compound, and sulfuric acid. Thus, the Applicants respectfully assert that the claimed invention is not obvious in view of Silva and Pierret.

The rejection of claim 6 under 35 USC 103(a) as being unpatentable over Silva in view of Pierret and in further view of Singh '146 is respectfully traversed. The Applicants reassert their above arguments with respect to Silva. In particular, Silva does not teach or suggest making a slurry with a tantalum concentrate containing at least one of $(Fe,Mn)(Ta,Nb)_2O_6$, $(Fe,Mn,Mg)(Nb,Ta)_2O_6$, $(Ca,Na)_2Ta_2O_6(O,OH,F)$ and $NaTaO_3$, a fluoride-containing compound, and sulfuric acid. Thus, the Applicants respectfully assert that the claimed invention is not obvious in view of Silva, Pierret and Singh '146.

The rejection of claims 5 and 11 under 35 USC 103(a) as being unpatentable over Silva in view of Pierret and in further view of Singh '459 is respectfully traversed. The Applicants reassert their above arguments with respect to Silva. In particular, Silva does not teach or suggest

making a slurry with a tantalum concentrate containing at least one of $(\text{Fe}, \text{Mn})(\text{Ta}, \text{Nb})_2\text{O}_6$, $(\text{Fe}, \text{Mn}, \text{Mg})(\text{Nb}, \text{Ta})_2\text{O}_6$, $(\text{Ca}, \text{Na})_2\text{Ta}_2\text{O}_6(\text{O}, \text{OH}, \text{F})$ and NaTaO_3 , a fluoride-containing compound, and sulfuric acid. In addition, because Silva reacts CaF_2 with the ore in a high temperature melting stage, the Applicants respectfully assert that one skilled in the art would not have been motivated to substitute the ammonium bifluoride of the low-temperature, wet process of Singh for the CaF_2 in the dry, high-temperature melting stage of Silva. Usefulness in one chemical process does not imply usefulness in a very different chemical process. Thus, the Applicants respectfully assert that the claimed invention is not obvious in view of Silva, Pierret and Singh '459.

The rejection of claim 7 under 35 USC §103(a) as being unpatentable over Silva in view of Pierret, Singh '459 and Singh '146 is respectfully traversed. The Applicants reassert their above arguments with respect to Silva. In particular, Silva does not teach or suggest making a slurry with a tantalum concentrate containing at least one of $(\text{Fe}, \text{Mn})(\text{Ta}, \text{Nb})_2\text{O}_6$, $(\text{Fe}, \text{Mn}, \text{Mg})(\text{Nb}, \text{Ta})_2\text{O}_6$, $(\text{Ca}, \text{Na})_2\text{Ta}_2\text{O}_6(\text{O}, \text{OH}, \text{F})$ and NaTaO_3 , a fluoride-containing compound, and sulfuric acid. In addition, because Silva reacts CaF_2 with the ore in a high temperature melting stage, the Applicants respectfully assert that one skilled in the art would not have been motivated to substitute the ammonium bifluoride of the low-temperature, wet process of Singh for the CaF_2 in the dry, high-temperature melting stage of Silva. Usefulness in one chemical process does not imply usefulness in a very different chemical process. Thus, the Applicants respectfully assert that the claimed invention is not obvious in view of Silva, Pierret, Singh '459 and Singh '146.

In view of the foregoing amendment, it is believed that the Examiner's rejections have been overcome and that the application is in condition for allowance. Such action is earnestly solicited.

Respectfully submitted,

/RFClark/

Robert F. Clark
Reg. No. 33,853

OSRAM SYLVANIA Inc.
100 Endicott St.
Danvers, MA 01923